



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,340	01/04/2005	Jose Solo de Zaldivar	CH02 0023 US	2662
24738	7590	02/22/2006	EXAMINER	
PHILIPS ELECTRONICS NORTH AMERICA CORPORATION INTELLECTUAL PROPERTY & STANDARDS 1109 MCKAY DRIVE, M/S-41SJ SAN JOSE, CA 95131			GRAHAM, KRETelia	
			ART UNIT	PAPER NUMBER
			2827	

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/520,340

Applicant(s)

SOLO DE ZALDIVAR ET AL.

Examiner

Kretelia Graham

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/04/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the liquid crystal display driver, comprising a non-volatile cell (**claim 6, lines 1-2**), portable equipment powered by battery, such as mobile phones, calculators, pagers, comprising a non-volatile cell (**claim 7, lines 1-3**), and the use of non-volatile cells according to claim 1 for calibration of electrical parameters in an integrated circuit (**claim 8, lines 1-3**) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

Art Unit: 2827

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because of the following minor informality: reference character **Si3N4** of **FIG. 9e** should read "**SiO<sub>3</sub>N4**" in order to accurately reflect the dielectric layer as indicated on **page 5, line 30** of the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2827

3. **Figure 1 (Page 4, lines 10-15 indicates that the data of FIG. 1 is a disadvantage to conventional cells and the present invention aims to overcome this disadvantage)** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The abstract of the disclosure is objected to because of the following minor informality: the abstract exceeds one paragraph in length. Correction is required. See MPEP § 608.01(b).

#### ***Claim Objections***

5. Claims 1-5 are objected to because of the following informalities:

Pertaining to claims 2-5, the examiner suggests changing the preamble phrase: "the cell according to" to "the erasable and programmable non-volatile cell" for clarity, so there is no confusion as to which cell the claim is referring to.

Pertaining to claim 1, "state" of **claim 1, line 6** lacks proper antecedent basis.

The examiner suggests changing the "cell" of **claim 1, line 6** to "erasable and programmable non-volatile cell" for clarity.

Pertaining to claim 4, the "n-well diffusion region" of **claim 4, line 2** lacks proper antecedent basis. The "p-channel transistor" of **claim 4, line 2** lacks proper antecedent basis.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by the US patent to Lin et al. (5,615,150).

Pertaining to claim 1, **FIG. 1** is directed towards: a erasable and programmable non-volatile cell **see column 2, line 58-61** comprising: a first transistor **403** having a source, a drain, and a gate; a floating capacitor **430** having a floating gate **FG** and a control gate **CG**, said floating gate being connected to said gate of said first transistor **see Abstract**; and means to detect the state, whether erased or programmed, of the cell **Note: If a high voltage is applied to the source of PMOS transistor 402, the transistor senses a programming state, in which electrons are removed from the**

Art Unit: 2827

**floating gate, as a result electrons tunnel from the floating gate to the source of PMOS transistor 402 (see column 4, lines 43-67 – column 5, lines 1-4);**

characterized in that said means to detect the state of the cell comprises a second transistor **402** having a source, a drain, and a gate, said second transistor being complementary to said first transistor **Note: Transistor 402 is a p-channel transistor and transistor 403 is a n-channel transistor** and said gate of said second transistor being connected to said floating gate.

Pertaining to claim 2, **column 3, lines 45-59** are directed towards: characterized in that said first transistor is a n-channel transistor and said second transistor is a p-channel transistor.

Pertaining to claim 3, **column 3, lines 45-59** are directed towards: characterized in that said first and second transistors are MOSFET transistors.

Pertaining to claim 8, Lin is directed towards: use of non-volatile cells according to claim 1 for calibration of electrical parameters in an integrated circuit **PMOS and NMOS transistors are used to set programming/erasure state voltages (see column 1, lines 8-12 and column 2, lines 58-67).**

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the US patent to Lin in view of the applicants' admitted prior art. Lin discloses all of the claim limitations except: characterized in that the n-well diffusion region of said p-channel transistor is the control gate of said floating capacitor. However, applicant discloses at **page 3, lines 13-15** of the specification: characterized in that the n-well diffusion region of said p-channel transistor is the control gate of said floating capacitor. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the non-volatile cell of Lin with the n-well diffusion region of applicants' admitted art in order to achieve faster electron tunneling rates for programming/erasing operations.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the US patent to Lin in view of the US patent to Nasu (6,088,262). Lin discloses all of the claim limitations except: liquid crystal display driver, comprising a non-volatile cell. However, **FIG. 16** of Nasu discloses: liquid crystal display driver **1000**, comprising a non-volatile cell **1004**; **Note: The semiconductor device 1000 as a whole, controls peripheral device 1032 (see column 11, lines 24-44, column 13, line 2-5, and column 14, lines 45-46.** It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the erasable and programmable device of Lin with the liquid crystal display driver of Nasu, since Nasu indicates at **column 3, lines 31-39** that such a modification would provide electronic equipment capable of image output.



11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the US patent to Lin in view of the US patent application publication to Wong et al. (2002/0180691 A1). Lin discloses all of the claim limitations except: portable equipment powered by battery, such as mobile phones, calculators, pagers, comprising a non-volatile cell. However **FIG. 2A and 2B** of Wong discloses: portable equipment **100a, 100b** powered by battery **90**; **also see [0062]**, such as mobile phones, calculators, pagers, comprising a non-volatile cell **see [0057]**; **Note: User interface 75, contained within computer system 100, may be implemented in a mobile phone, calculator, or pager (see [0050])**.

***Allowable Subject Matter***

12. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record considered pertinent to the applicants' disclosure, whether taken individually or in combination, does not teach or suggest: characterized in that said floating gate and the gates of the first and second transistors are embodied as a single polymer layer.

13. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Art Unit: 2827

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kretelia Graham whose telephone number is (571) 272-5055. The examiner can normally be reached on Mon-Fri 8am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KG  
KG

  
AMIR ZARABIAN  
SUPERVISOR/PATENT EXAMINER  
TECHNOLOGY CENTER 2800